

**Amendments to the Specification**

Please insert at page 26, line 10 of the specification as filed, after the heading Brief Description of the Drawings and before the first paragraph in that section, the following paragraph:

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawing(s) will be provided by the Office upon request and payment of the necessary fee.

Please replace the first full paragraph on page 43 of the application as filed with the following, amended paragraph:

In an alternative embodiment, different PETs may be linked together in a single, longer immunogen for administration to an animal. The linker sequence can be flexible linkers such as GS, GSSSS SEQ ID NO. 615) or repeats thereof (such as three-peats).

Please replace the Table titled "Commercial Anti-PET Antibodies" bridging pages 43-44 of the application as filed with the following, amended Table. Please note that only the SEQ ID NOs have been added to this Table. The underlined portions of the sequences in this Table appear underlined in the application as filed.

**Commercial Anti-PET Antibodies**

| Protein                        | PTP (Immunogen/PET underlined )                       | Nearest Neighbors  |
|--------------------------------|---|--|
| Anti-Cyclin F                  | TASPT <u>TSSVDGGL</u> GALP.K<br>(SEQ ID NO. 616)      | <u>SASIDGGL</u> (SEQ ID NO. 617);<br><u>SSSSDGGL</u> (SEQ ID NO. 618);<br><u>TGSVDGGA</u> (SEQ ID NO. 619);<br><u>ESSSDGGL</u> (SEQ ID NO. 620)  |
| Anti-phospho<br>SHC (Tyr239)   | FAGMPITLTVST <u>TSSLNL</u> MAADCK<br>(SEQ ID NO. 621) | <u>ISTASLNL</u> (SEQ ID NO. 622);<br><u>ISTSSLNV</u> (SEQ ID NO. 623);<br><u>VSLSSLNL</u> (SEQ ID NO. 624);<br><u>MDTSSLNL</u> (SEQ ID NO. 625)  |
| Anti-phospho-<br>PP2A (Tyr307) | EEE <u>ADINQLTE</u> EFF.K<br>(SEQ ID NO. 626)         | <u>ADLNQLTQ</u> (SEQ ID NO. 627);<br><u>RDINQLSE</u> (SEQ ID NO. 628);<br><u>ADFNQLAE</u> (SEQ ID NO. 629);<br><u>ADINMVTE</u> (SEQ ID NO. 630)  |
| Anti-Cdk8                      | ATS <u>QQPPQYSH</u> QTHR<br>(SEQ ID NO. 631)          | <u>QEPPQYSH</u> (SEQ ID NO. 632);<br><u>QQQPQFSH</u> (SEQ ID NO. 633);<br><u>QQPPQHSH</u> (SEQ ID NO. 634);<br><u>QQPPQQQH</u> (SEQ ID NO. 635); |

Please replace the Table bridging pages 104-105 of the application as filed with the following, amended Table:

| Protein Kinase                                   | Recognition Motifs <sup>a</sup>     | Phosphorylation Sites <sup>b</sup>  | Protein Substrate (reference)  |
|--|-------------------------------------|---|--|
| cAMP-dependent Protein Kinase (PKA, cAPK)        | R-X-S/T <sup>c</sup><br>R-R/K-X-S/T | Y <sub>7</sub> LRRASLAQLT<br>(SEQ ID NO. 636)<br>F <sub>1</sub> RRLSIST<br>(SEQ ID NO. 637)<br>A <sub>29</sub> GARRKASGPP<br>(SEQ ID NO. 638)     | pyruvate kinase (2)<br>phosphorylase kinase, a chain (2)<br>histone H1, bovine (2)                           |
| Casein Kinase I (CKI, CK-1)                      | S(P)-X-X-S/T                        | R <sub>4</sub> TL <sub>S</sub> (P)VSSLPGL<br>(SEQ ID NO. 639)<br>D <sub>43</sub> IGS(p)ES(p)TEDQ<br>(SEQ ID NO. 640)                              | glycogen synthase, rabbit muscle (4)<br>a <sub>s1</sub> -casein (4)  |
| Casein Kinase II (CKII, CK-2)                    | S/T-X-X-E                           | A <sub>72</sub> DSESEDEED<br>(SEQ ID NO. 641)<br>L <sub>37</sub> ESEEEGVPST<br>(SEQ ID NO. 642)<br>E <sub>26</sub> DNSEDEISNL<br>(SEQ ID NO. 643) | PKA regulatory subunit, R <sub>II</sub> (2)<br>p34 <sup>cdc2</sup> , human (5)<br>acetyl-CoA carboxylase (2) |
| Glycogen Synthase Kinase 3 (GSK-3)               | S-X-X-X-S(p)                        | S <sub>641</sub> VPPSPSL <sub>S</sub> (p)<br>(SEQ ID NO. 644)<br>S <sub>641</sub> VPPS(p)PSL <sub>S</sub> (p)<br>(SEQ ID NO. 645)                 | glycogen synthase, human (site 3b) (6,2)<br>glycogen synthase, human (site 3a) (6,2)                         |
| Cdc2 Protein Kinase                              | S/T-P-X-R/K <sup>c</sup>            | P <sub>13</sub> AKTPVK<br>(SEQ ID NO. 646)<br>H <sub>122</sub> STPPKKKRRK<br>(SEQ ID NO. 647)   | histone H1, calf thymus (2)<br>large T antigen (2)   |
| Calmodulin-dependent Protein Kinase II (CaMK II) | R-X-X-S/T<br>R-X-X-S/T-V            | N <sub>2</sub> YLRRRLSDSN<br>(SEQ ID NO. 648)<br>K <sub>191</sub> MARVFSVLR   | synapsin (site 1) (2)<br>calcineurin (2)   |

|  |   |   |  |
|--|---|---|--|
|  |   | (SEQ ID NO. 649)  |  |
| Mitogen-activated Protein Kinase (Extracellular Signal-regulated Kinase) (MAPK, Erk) | P-X-S/T-P <sup>d</sup><br>X-X-S/T-P     | P <sub>244</sub> LSP<br>(SEQ ID NO. 650)<br>P <sub>92</sub> SSP<br>(SEQ ID NO. 651)<br>V <sub>420</sub> LSP<br>(SEQ ID NO. 652)                 | c-Jun (7)<br>cyclin B (7)<br>Elk-1 (7)                                       |
| cGMP-dependent Protein Kinase (cGPK)   | R/K-X-S/T<br>R/K- X -X-S/T              | G <sub>26</sub> KKRKRSRKES<br>(SEQ ID NO. 653)<br>F <sub>1</sub> RRLSIST<br>(SEQ ID NO. 654)  | histone H2B (2)<br>phosphorylase kinase (a chain) (2)                        |
| Phosphorylase Kinase (PhK)   | K/R-X-X-S-V/I                           | D <sub>6</sub> QEKRKQISVRG<br>(SEQ ID NO. 655)<br>P <sub>1</sub> LSRTL SVSS<br>(SEQ ID NO. 656)   | phosphorylase (2)<br>glycogen synthase (site 2) (2)                          |
| Protein Kinase C (PKC)   | S/T-X-K/R<br>K/R- X -X-S/T<br>K/R-X-S/T | H <sub>594</sub> EGTHSTKR<br>(SEQ ID NO. 657)<br>P <sub>1</sub> LSRTL SVSS<br>(SEQ ID NO. 658)<br>Q <sub>4</sub> KRPSQRSKYL<br>(SEQ ID NO. 659) | fibrinogen (2)<br>glycogen synthase (site 2) (2)<br>myelin basic protein (2) |
| Abl Tyrosine Kinase  | I/V/L-Y-X-X-P/F <sup>c</sup>            |   |  |
| Epidermal Growth Factor Receptor Kinase (EGF-RK)                                     | E/D-Y-X<br>E/D-Y-I/L/V                  | R <sub>1168</sub> ENAEYLRVAP<br>(SEQ ID NO. 660)<br>A <sub>767</sub> EPDYGALYE<br>(SEQ ID NO. 661)  | autophosphorylation (2)<br>phospholipase C-g(2)                              |

Single-letter Amino Acid Code:

A = alanine, C = cysteine, D = aspartic acid, E = glutamic acid, F = phenylalanine, G = glycine, H = histidine, I = isoleucine, K = lysine, L = leucine, M = methionine, N = asparagine, P = proline, Q = glutamine, R = arginine, S = serine, T = threonine, W = tryptophan, V = valine, Y = tyrosine, X = any amino acid

Recognition motifs are taken from Pearson and Kemp (*supra*) except where noted. Consult Pearson and Kemp for a comprehensive list of phosphorylation site sequences and specificity motifs.

<sup>b</sup> Subscripted numbers refer to the position of the first residue within the given polypeptide chain.

<sup>c</sup> From (1).

<sup>d</sup> From (7).

<sup>e</sup> From (8). See refs (8) and (9) for discussion of substrate recognition by Abl.

Please replace the Table SARS appearing on pages 128-145 of the application as filed with the following, amended Table SARS:

Table SARS List of SARS virus-specific PETs

|                            |                                |   |
|----------------------------|--------------------------------|---|
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">ISLCSCIC (SEQ ID NO. 663)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">SLCSCICT (SEQ ID NO. 664)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">LCSCICTV (SEQ ID NO. 665)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">CSCICTVV (SEQ ID NO. 666)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">SCICTVVQ (SEQ ID NO. 667)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">CICTVVQR (SEQ ID NO. 668)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">ICTVVQRC (SEQ ID NO. 669)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">CTVVQRCA (SEQ ID NO. 670)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">HVLEDPCK (SEQ ID NO. 671)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">VLEDPCKV (SEQ ID NO. 672)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">LEDPCKVQ (SEQ ID NO. 673)</a> |
| >gi 30795153 gb AAP41045.1 | Orf10 [SARS coronavirus Tor2]  | <a href="#">EDPCKVQH (SEQ ID NO. 674)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">MNELTLID (SEQ ID NO. 675)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">NELTLIDF (SEQ ID NO. 676)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">ELTLIDFY (SEQ ID NO. 677)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LTLIDFYL (SEQ ID NO. 678)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">TLIDFYLC (SEQ ID NO. 679)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LIDFYLCF (SEQ ID NO. 680)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">IDFYLCFL (SEQ ID NO. 681)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">DFYLCFLA (SEQ ID NO. 682)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">FYLCFLAF (SEQ ID NO. 683)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">YLCFLAFL (SEQ ID NO. 684)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LCFLAFL (SEQ ID NO. 685)</a>  |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">CFLAFLLF (SEQ ID NO. 686)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">FLAFLFL (SEQ ID NO. 687)</a>  |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LAFLFLV (SEQ ID NO. 688)</a>  |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">AFLFLVL (SEQ ID NO. 689)</a>  |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">FLLFLVLI (SEQ ID NO. 690)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LLFLVLIM (SEQ ID NO. 691)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LFLVLIML (SEQ ID NO. 692)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">FLVLIMLI (SEQ ID NO. 693)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LVLIMLII (SEQ ID NO. 694)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">VLIMLIIF (SEQ ID NO. 695)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LIMLIIFW (SEQ ID NO. 696)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">IMLIIFWF (SEQ ID NO. 697)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">MLIIFWFS (SEQ ID NO. 698)</a> |
| >gi 32187352 gb AAP72981.1 | Orf7b [SARS coronavirus HSR 1] | <a href="#">LIIFWFSL (SEQ ID NO. 699)</a> |

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>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] FWFSLEIQ (SEQ ID NO. 702)  
>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] WFSLEIQD (SEQ ID NO. 703)  
>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] FSLEIQDL (SEQ ID NO. 704)  
>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] SLEIQDLE (SEQ ID NO. 705)  
>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] LEIQDLEE (SEQ ID NO. 706)  
>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] EIQDLEEP (SEQ ID NO. 707)  
>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] IQDLEEPC (SEQ ID NO. 708)  
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>gi|32187352|gb|AAP72981.1| Orf7b [SARS coronavirus HSR 1] LEEPCTKV (SEQ ID NO. 711)  
>gi|32187350|gb|AAP72979.1| Orf6 [SARS coronavirus HSR 1] DEEPMELB (SEQ ID NO. 712)  
>gi|32187350|gb|AAP72979.1| Orf6 [SARS coronavirus HSR 1] EEPMELBY (SEQ ID NO. 713)  
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>gi|30023959|gb|AAP13572.1| unknown [SARS coronavirus CUHK-W1]  
DEEPMELD (SEQ ID NO. 715)  
>gi|30023959|gb|AAP13572.1| unknown [SARS coronavirus CUHK-W1]  
EEPMELDY (SEQ ID NO. 716)  
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EPMELDYP (SEQ ID NO. 717)  
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EAEAAVKP (SEQ ID NO. 746)  
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AEAAVKPL (SEQ ID NO. 747)  
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VKPLLAPH (SEQ ID NO. 751)  
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KPLLAPHH (SEQ ID NO. 752)  
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AA VGEILL (SEQ ID NO. 771)  
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AVGEILL (SEQ ID NO. 772)  
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VGEILLLE (SEQ ID NO. 773)  
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GEILLLEW (SEQ ID NO. 774)



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EILLLEWL (SEQ ID NO. 775)
- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
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- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
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- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
LLEWLAEV (SEQ ID NO. 778)
- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
LEWLAEVV (SEQ ID NO. 779)
- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
EWLAEVVK (SEQ ID NO. 780)
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- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
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- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
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- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
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- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
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- >gi|31747859|gb|AAP69660.1| uncharacterized protein 9c [SARS coronavirus ZJ-HZ01]  
KLPSRYCC (SEQ ID NO. 787)
- >gi|31416298|gb|AAP51230.1| envelope protein E [SARS coronavirus GZ01]  
VLLFLAFM (SEQ ID NO. 788)
- >gi|31416298|gb|AAP51230.1| envelope protein E [SARS coronavirus GZ01]  
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- >gi|31416298|gb|AAP51230.1| envelope protein E [SARS coronavirus GZ01]  
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- >gi|31416298|gb|AAP51230.1| envelope protein E [SARS coronavirus GZ01]  
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- >gi|31416298|gb|AAP51230.1| envelope protein E [SARS coronavirus GZ01]  
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- >gi|31416298|gb|AAP51230.1| envelope protein E [SARS coronavirus GZ01]  
MVFLLVTL (SEQ ID NO. 795)
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FVVFLLVT (SEQ ID NO. 802)

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VPPALHLV ([SEQ ID NO. 827](#))  
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KSQNPLLY (SEQ ID NO. 1112)
- >gi|30275670|gb|AAP30031.1| putative uncharacterized protein 1 [SARS coronavirus BJ01]  
SQNPLLYD (SEQ ID NO. 1113)
- >gi|30275670|gb|AAP30031.1| putative uncharacterized protein 1 [SARS coronavirus BJ01]  
QNPLLYDA (SEQ ID NO. 1114)
- >gi|31416296|gb|AAP51228.1| BGI-PUP1 [SARS coronavirus GZ01]  
TDTIVVTA (SEQ ID NO. 1115)
- >gi|31416296|gb|AAP51228.1| BGI-PUP1 [SARS coronavirus GZ01]  
DTIVVTAG (SEQ ID NO. 1116)
- >gi|31416296|gb|AAP51228.1| BGI-PUP1 [SARS coronavirus GZ01]  
TIVVTAGD (SEQ ID NO. 1117)
- >gi|31416296|gb|AAP51228.1| BGI-PUP1 [SARS coronavirus GZ01]  
IVVTAGDG (SEQ ID NO. 1118)
- >gi|31416296|gb|AAP51228.1| BGI-PUP1 [SARS coronavirus GZ01]



VVTAGDGI (SEQ ID NO. 1119)  
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VTAGDGIS (SEQ ID NO. 1120)  
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TAGDGIST (SEQ ID NO. 1121)  
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AGDGISTP (SEQ ID NO. 1122)  
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IGGYSEDW (SEQ ID NO. 1123)  
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GGYSEDWH (SEQ ID NO. 1124)  
>gi|31416296|gb|AAP51228.1| BGI-PUP1 [SARS coronavirus GZ01]  
GYSEDWHS (SEQ ID NO. 1125)  
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YSEDWHS (SEQ ID NO. 1126)  
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SEDWHS (SEQ ID NO. 1127)  
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EDWHS (SEQ ID NO. 1128)  
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DWHSGVKD (SEQ ID NO. 1129)  
>gi|31416296|gb|AAP51228.1| BGI-PUP1 [SARS coronavirus GZ01]  
WHS (SEQ ID NO. 1130)  
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>gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] FFFTLRSIT (SEQ ID NO. 1134)  
>gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] FTLRSITA (SEQ ID NO. 1135)  
>gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] TLRSTIAQ (SEQ ID NO. 1136)  
>gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] LRSITAPQ (SEQ ID NO. 1137)  
>gi|30795146|gb|AAP41038.1| Orf3 [SARS coronavirus Tor2] RSITAPQV (SEQ ID NO. 1138)  
>gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
RSSRSRC (SEQ ID NO. 1139)  
>gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
SSRSRCN (SEQ ID NO. 1140)  
>gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
SSRSRCNS (SEQ ID NO. 1141)  
>gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
SRSRCNSR (SEQ ID NO. 1142)  
>gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
RSRCNSRN (SEQ ID NO. 1143)  
>gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
SRCNSRNS (SEQ ID NO. 1144)  
>gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
RCNSRNST (SEQ ID NO. 1145)

- >gi|30421455|gb|AAP30714.1| putative nucleocapsid protein [SARS coronavirus CUHK-Su10]  
CNSRNSTP (SEQ ID NO. 1146)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
PQGLPNNI (SEQ ID NO. 1147)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
QGLPNNIA (SEQ ID NO. 1148)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
GLPNNIAS (SEQ ID NO. 1149)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
LPNNIASW (SEQ ID NO. 1150)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
PNNIASWF (SEQ ID NO. 1151)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
NNIASWFT (SEQ ID NO. 1152)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
NIASWFTA (SEQ ID NO. 1153)
- >gi|31540949|gb|AAP49024.1| nucleocapsid protein [SARS coronavirus]  
IASWFTAL (SEQ ID NO. 1154)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
HTSPDVDF (SEQ ID NO. 1155)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
TSPDVDFG (SEQ ID NO. 1156)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
SPDVDFGD (SEQ ID NO. 1157)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
PDVDFGDI (SEQ ID NO. 1158)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
DVDFGDIS (SEQ ID NO. 1159)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
VDFGDISG (SEQ ID NO. 1160)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
DFGDISGI (SEQ ID NO. 1161)
- >gi|31581505|gb|AAP33697.1| spike protein S [SARS coronavirus Frankfurt 1]  
FGDISGIN (SEQ ID NO. 1162)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
RAILTAFL (SEQ ID NO. 1163)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
AILTAFLP (SEQ ID NO. 1164)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
ILTAFLPA (SEQ ID NO. 1165)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
LTAFLPAQ (SEQ ID NO. 1166)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
TAFLPAQD (SEQ ID NO. 1167)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]

AFLPAQDT (SEQ ID NO. 1168)  
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FLPAQDTW (SEQ ID NO. 1169)  
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LPAQDTWG (SEQ ID NO. 1170)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
NFRVVPSR (SEQ ID NO. 1171)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
FRVVPSRD (SEQ ID NO. 1172)  
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RVVPSRDV (SEQ ID NO. 1173)  
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VVPSRDVV (SEQ ID NO. 1174)  
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VPSRDVVR (SEQ ID NO. 1175)  
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PSRDVVRF (SEQ ID NO. 1176)  
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SRDVVRFP (SEQ ID NO. 1177)  
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RDVVRFPN (SEQ ID NO. 1178)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
VYAWERKR (SEQ ID NO. 1179)  
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YAWERKRI (SEQ ID NO. 1180)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
AWERKRIS (SEQ ID NO. 1181)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
WERKRISN (SEQ ID NO. 1182)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
ERKRISNC (SEQ ID NO. 1183)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
RKRISNCV (SEQ ID NO. 1184)  
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KRISNCVA (SEQ ID NO. 1185)  
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RISNCVAD (SEQ ID NO. 1186)  
>gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
YRVVVLSY (SEQ ID NO. 1187)  
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RVVVLSYE (SEQ ID NO. 1188)  
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VVVLSYEL (SEQ ID NO. 1189)  
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VVLSYELL (SEQ ID NO. 1190)

- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
VLSYELLN (SEQ ID NO. 1191)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
LSYELLNA (SEQ ID NO. 1192)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
SYELLNAP (SEQ ID NO. 1193)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
YELLNAPA (SEQ ID NO. 1194)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
YKTPTLKD (SEQ ID NO. 1195)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
KTPTLKDF (SEQ ID NO. 1196)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
TPTLKDFG (SEQ ID NO. 1197)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
PTLKDFGG (SEQ ID NO. 1198)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
TLKDFGGF (SEQ ID NO. 1199)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
LKDFGGFN (SEQ ID NO. 1200)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
KDFGGFNF (SEQ ID NO. 1201)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
DFGGFNFS (SEQ ID NO. 1202)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
ILPDPLKS (SEQ ID NO. 1203)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
LPDPLKST (SEQ ID NO. 1204)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
PDPLKSTK (SEQ ID NO. 1205)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
DPLKSTKR (SEQ ID NO. 1206)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
PLKSTKRS (SEQ ID NO. 1207)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
LKSTKRSF (SEQ ID NO. 1208)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
KSTKRSFI (SEQ ID NO. 1209)
- >gi|31416295|gb|AAP51227.1| spike glycoprotein S [SARS coronavirus GZ01]  
STKRSFIE (SEQ ID NO. 1210)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]  
ILDISPCA (SEQ ID NO. 1211)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]  
LDISPCAF (SEQ ID NO. 1212)
- >gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]



DISPCAFG (SEQ ID NO. 1213)  
>gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]  
ISPCAFGG (SEQ ID NO. 1214)  
>gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]  
SPCAFGGV (SEQ ID NO. 1215)  
>gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]  
PCAFGGVS (SEQ ID NO. 1216)  
>gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]  
CAFGGVSV (SEQ ID NO. 1217)  
>gi|30795145|gb|AAP41037.1| spike glycoprotein [SARS coronavirus Tor2]  
AFGGVSVI (SEQ ID NO. 1218)  
>gi|30023954|gb|AAP13567.1| putative E2 glycoprotein precursor [SARS coronavirus CUHK-W1]  
AFSPAQDT (SEQ ID NO. 1219)  
>gi|30023954|gb|AAP13567.1| putative E2 glycoprotein precursor [SARS coronavirus CUHK-W1]  
FSPAQDTW (SEQ ID NO. 1220)  
>gi|30023954|gb|AAP13567.1| putative E2 glycoprotein precursor [SARS coronavirus CUHK-W1]  
SPAQDTWG (SEQ ID NO. 1221)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
DALCEKAS (SEQ ID NO. 1222)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
ALCEKASK (SEQ ID NO. 1223)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
LCEKASKY (SEQ ID NO. 1224)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
CEKASKYL (SEQ ID NO. 1225)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
EKASKYLP (SEQ ID NO. 1226)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] KASKYLP (SEQ ID NO. 1227)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] ASKYLPID (SEQ ID NO. 1228)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] SKYLPIDK (SEQ ID NO. 1229)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] SVIDLLN (SEQ ID NO. 1230)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] LLLNDFVE (SEQ ID NO. 1231)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] LLNDFVEI (SEQ ID NO. 1232)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] LNDFVEII (SEQ ID NO. 1233)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01] NDFVEIHK (SEQ ID NO. 1234)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
LVDSLNE (SEQ ID NO. 1235)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
VDSLNEF (SEQ ID NO. 1236)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
DSDLNEFV (SEQ ID NO. 1237)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
SDLNEFVS (SEQ ID NO. 1238)  
>gi|31416293|gb|AAP51225.1| orf1ab [SARS coronavirus GZ01]  
DLNEFVSD (SEQ ID NO. 1239)

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]  
LNEFVSDA ([SEQ ID NO. 1240](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]  
NEFVSDAD ([SEQ ID NO. 1241](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] EFVSDADS ([SEQ ID NO. 1242](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]  
ANYIFWRK ([SEQ ID NO. 1243](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]  
NYIFWRKT ([SEQ ID NO. 1244](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01]  
YIFWRKTN ([SEQ ID NO. 1245](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] IFWRKTNP ([SEQ ID NO. 1246](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] FWRKTNPI ([SEQ ID NO. 1247](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] WRKTNPIQ ([SEQ ID NO. 1248](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] RKTNPQL ([SEQ ID NO. 1249](#))

>gi|31416293|gb|AAP51225.1|orf1ab [SARS coronavirus GZ01] KTNPIQLS ([SEQ ID NO. 1250](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
SADASTFF ([SEQ ID NO. 1251](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
ADASTFFK ([SEQ ID NO. 1252](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
DASTFFKR ([SEQ ID NO. 1253](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
ASTFFKRV ([SEQ ID NO. 1254](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
STFFKRVC ([SEQ ID NO. 1255](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
TFFKRVCG ([SEQ ID NO. 1256](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
FFKRVCGV ([SEQ ID NO. 1257](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
FKRVCGVS ([SEQ ID NO. 1258](#))

>gi|30795144|gb|AAP41036.1|replicase 1AB [SARS coronavirus Tor2]  
KRVCGVSA ([SEQ ID NO. 1259](#))

>gi|31581504|gb|AAP33696.1|polyprotein 1ab [SARS coronavirus Frankfurt 1]  
ELFYSAI ([SEQ ID NO. 1260](#))

>gi|31581504|gb|AAP33696.1|polyprotein 1ab [SARS coronavirus Frankfurt 1]  
LFYSYAIH ([SEQ ID NO. 1261](#))

>gi|31581504|gb|AAP33696.1|polyprotein 1ab [SARS coronavirus Frankfurt 1]  
FYSYAIHH ([SEQ ID NO. 1262](#))

>gi|31581504|gb|AAP33696.1|polyprotein 1ab [SARS coronavirus Frankfurt 1]  
YSYAIHHD ([SEQ ID NO. 1263](#))

>gi|31581504|gb|AAP33696.1|polyprotein 1ab [SARS coronavirus Frankfurt 1]  
SYAIHHDK ([SEQ ID NO. 1264](#))



>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]  
YAIHHDKF (SEQ ID NO. 1265)  
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]  
AIHHDKFT (SEQ ID NO. 1266)  
>gi|31581504|gb|AAP33696.1| polyprotein 1ab [SARS coronavirus Frankfurt 1]  
IHHDKFTD (SEQ ID NO. 1267)



Please replace the Table bridging pages 146-147 of the application as filed with the following, amended Table. Please note that only the SEQ ID NOs have been added to this Table. The underlined portions of the sequences in this Table appear underlined in the application as filed.

| <b>PET</b> | <b>LSEPAELTDAVK (SEQ ID NO. 1280)</b>                         | <b>AA Differences</b> |
|------------|---|-----------------------|
| - NNP1     | DE <u>P</u> VELT <u>S</u> APTGH <u>T</u> FS (SEQ ID NO. 1281) | 2                     |
| - NNP2     | AGE <u>A</u> ELQDAEVESSAK (SEQ ID NO. 1282)                   | 2                     |
| - NNP3     | LQEP <u>A</u> ELV <u>E</u> SDGV <u>P</u> (SEQ ID NO. 1283)    | 3                     |
| - NNP4     | AQ <u>P</u> AE <u>L</u> VD <u>S</u> SGW (SEQ ID NO. 1284)     | 3                     |
| - NNP5     | GLDPTQLT <u>D</u> ALTQR (SEQ ID NO. 1285)                     | 3                     |
| <b>PET</b> | <b>YEVQGEVFTK (SEQ ID NO. 1286)</b>                           | <b>AA Differences</b> |
| - NNP1     | H <u>V</u> EV <u>N</u> GEV <u>F</u> QK (SEQ ID NO. 1287)      | 2                     |
| - NNP2     | SYEVL <u>G</u> EE <u>F</u> DR (SEQ ID NO. 1288)               | 2                     |
| - NNP3     | QY <u>A</u> V <u>S</u> GE <u>I</u> FVVDR (SEQ ID NO. 1289)    | 3                     |
| - NNP4     | VYEEQGE <u>I</u> I <u>L</u> (SEQ ID NO. 1290)                 | 3                     |
| - NNP5     | LYEVRGE <u>T</u> Y <u>L</u> (SEQ ID NO. 1291)                 | 3                     |



Please replace the Table on page 149 of the application as filed with the following, amended Table. Please note that only the SEQ ID NOs have been added to this Table. The underlined portions of the sequences in this Table appear underlined in the application as filed.

|      |  |
|------|--|
| hK1  | <u>HSQPWQ</u> VAVYSHGWAHCGGVLVHR (SEQ ID NO. 1296)                     |
| hK2  | IVGGWECEQH <u>SQPWQ</u> AALYHFSTFQCGGILVHK (SEQ ID NO. 1297)           |
| hK3  | <u>GSQPWQ</u> VSLFNGLSFHCAGVLVDR (SEQ ID NO. 1298)                     |
| hK4  | <u>NSQPWQ</u> VGLFEGTSLR (SEQ ID NO. 1299)                             |
| hK5  | HECQPH <u>SQPWQ</u> AALFQGQQLLCGGVLVGR (SEQ ID NO. 1300)               |
| hK8  | EDCSPH <u>SQPWQ</u> AALVMENELFCSGVLVHR (SEQ ID NO. 1301)               |
| hK9  | VL <u>NTNGTSGF</u> LPGGYTCTFPH <u>SQPWQ</u> AALLVQGR (SEQ ID NO. 1302) |
| hK10 | LL <u>EGDECAPHSQPWQ</u> VALYER (SEQ ID NO. 1303)                       |
| hK11 | PN <u>SQPWQAGLFHLTR</u> (SEQ ID NO. 1304)                              |
| hK6  | CVTAGTSCLIS <u>SGWGSTSSPQLR</u> (SEQ ID NO. 1305)                      |
| Hk7  | VMDLPT <u>QEPALGTT</u> CYAS <u>SGWGS</u> IEPEEFLTPK (SEQ ID NO. 1306)  |



Please replace the first full paragraph on page 150 of the application as filed with the following, amended paragraph. Please note that only the SEQ ID NOs have been added to this paragraph. The underlined portions of the sequences in this paragraph appear underlined in the application as filed.

In addition, the same approach may be used to detect the presence of alternative splicing isoforms of any protein. For example, there are three alternative splicing forms of hK15 (\* represents trypsin digestion sites):

hK15-V1 R\*LNPQVR\*PAVLPTR\*CPHPGEACVVSGWGLVSHEPGTAGSPR\*SQG (SEQ ID NO. 1307)

hK15-V2 R\*LNPQ (SEQ ID NO. 1308)-----  
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hK15-V3 R\*LNPQGDSGGPLVCGGILQGIVSWGDVPCDNTTK\*PGVYTK (SEQ ID NO. 1309)